

REMARKS

Claims 1-8, 13 and 14 are now pending. Claims 9-12 have been withdrawn. Applicants reserve the right to request rejoinder.

Claims 1-8, 13 and 14 were rejected under 35 U.S.C. 112, second paragraph, as being indefinite.

The Examiner has objected to the recitation of the term "Gene Networks." Applicants have deleted the objected to term. Claims 1 and 13 have been amended to more precisely claim what is meant by a gene network. Withdrawal of the Section 112 rejected is requested.

With respect to claim 5, Applicants respectfully disagree with the rejection. Reference is made to claim 4 wherein Applicants recite various different kinds of parameters. Claim 5 goes on to specify that the parameters having a semantic biological meaning relate to ontologies and functional domains. Applicants assert that this claim is quite clear to one skilled in the art. Withdrawal of the Section 112 rejected is requested.

With respect to claim 6, Applicant has amended the claim to more clearly recite the claimed operation.

Claim 1-8 were rejected under 35 U.S.C. 101 as being directed to non-statutory subject matter. Applicants have amended claim 1 to recite a useful, tangible and concrete result comprising identifying the groups of genes associated with pair combinations whose characteristic value is greater than a certain pre-established threshold as being members of a network of genes likely to be involved in a particular cellular process.

Claims 1-7, 13 and 14 were rejected under 35 U.S.C. 103(a) as being unpatentable over Shamir in view of Dougherty and Tolley.

Applicants first note that no art rejection is asserted with respect to claim 8. Thus, having addressed the Section 101 and Section 112 issues as discussed above, Applicants respectfully request that the Examiner indicate that claim 8 is allowable. If this is not the case, Applicants request that the Examiner recite a newly presented art rejection as to claim 8, and note that a next office action on the merit cannot be made Final.

With respect to claim 1, the Examiner points to Shamir paragraphs 4-21. Applicants fail to see the pertinence of Shamir's teachings to the claimed invention. While Shamir mentions analyzing gene expression data, grouping of genes and revealing an underlying gene regulatory network (see, paragraph 5), the solution of paragraphs 12-17 involves a graph-theoretic analysis (see, paragraph 11) which is quite different from the claimed invention. This is emphasized by the cited Hartuv technique (see paragraph 15). The claimed invention instead concerns tables of gene expression data, the identification of sub-tables based on clustering criterion and the establishing of pair combinations from the sub-tables. A review of Shamir paragraphs 4-21 fails to reveal any teaching of these claimed operations based on table/sub-table analysis. Thus, and given the Examiner failure to cite to any other prior art reference with respect to these claimed limitations, Shamir fails to teach or suggest the claimed invention.

Claim 1 still further recites generating for each pair combination a characteristic value in function of determined characteristic parameters of the data associated to the groups of genes. The Examiner again relies on Shamir, but fails to specifically identify what aspect of Shamir's graph-theoretic analysis would teach pair combinations for tables or the determination of a characteristic value for each pair combination. In fact, a review of page 7 of the office action reveals that the Examiner has wholly failed to address the recited characteristic value language

from the claims. Applicants thus submit that the Examiner has failed to make out the *prima facie* case for rejecting claim 1. Applicants respectfully request that the Examiner specifically show how Shamir meets the claimed characteristic value limitation, wherein the characteristic value is generated for each pair combination in function of determined characteristic parameters of the data associated to the groups of genes.

Claim 1 still further recites identifying the groups of genes associated with pair combinations whose characteristic value is greater than a certain pre-established threshold as being members of a network of genes likely to be involved in a particular cellular process. Again, the Examiner relies on Shamir paragraphs 15-17. However, the Examiner's reliance on Shamir is misplaced. Paragraphs 15-17 of Shamir do not teach comparing a characteristic value (which is generated for each pair combination in function of determined characteristic parameters of the data associated to the groups of genes) to a threshold, and then including the groups of genes for pair combinations whose characteristic value exceeds the threshold as being members of a network of genes likely to be involved in a particular cellular process. Absent such a teaching in Shimir, or the showing that this limitation is met by one of the other cited references, the Examiner has failed to make out the *prima facie* case for rejecting claim 1.

In view of the foregoing, Applicants respectfully submit that claim 1 is patentable over the cited combination of prior art. Allowance of claim 1, along with its dependent claims, is requested. Applicants also request rejoinder of withdrawn claims 9-12 in view of the allowability of claim 1.

Turning next to dependent claim 2, Applicants recite the use of logic filtering criteria to establish pair combinations. The Examiner relies on Shamir paragraphs 51-54. Paragraphs 51-

CUSTOMER NO. 23932

PATENT APPLICATION
Docket No. 64659-3USPX

54 concern normalizing data and do not recite any sort of logical filtering operation or the specification of logic filtering criteria. The Examiner also cites to Shamir paragraph 101. Paragraph 101 mentions "filtering removes genes" but does not teach logical filtering operations or logical filtering criterion as claimed. Applicants respectfully request that the examiner show how the paragraph 101 filtering meets the specifically recited logical filtering claim language. In view of the foregoing, Applicants submit that claim 2 is patentable over the cited prior art.

With respect to claim 13, Applicants respectfully submit that this claim is patentable over the cited prior art for at least the same reasons as claim 1.

Allowance of the application is requested.

Respectfully submitted,

JENKENS & GILCHRIST,
A Professional Corporation

By:

Andre M. Szwalski
Registration No. 35,701

1445 Ross Avenue, Suite 3700
Dallas, Texas 75202-2799
Tel: 214/855-4795
Fax: 214/855-4300